



Federal Policy Efforts to Simplify College-Going: An Intervention in Community College Enrollment and Borrowing

By
KELLY OCHS ROSINGER

Over the past decade, the federal government has made substantial efforts to simplify the college-going process and help students to evaluate college choices. These low-cost strategies aimed at improving college access and success by helping students to make informed decisions about college warrant assessment. This study examines the impact of a recent effort aimed at simplifying information that colleges provide to students about college costs, loan options, and college outcomes. Results from a quasi-experimental analysis indicate that the “informational intervention” in this study had limited influence on community college students’ enrollment and borrowing decisions. I discuss the limitations of this particular intervention and the potential impact that other related policy efforts designed to help students at various points in the college-going process may have.

Keywords: postsecondary education; community college; student debt; college outcomes; quasi-experimental methods

Recent policy efforts within the federal government have focused on providing simplified information to help consumers evaluate complex decisions. Such efforts often draw on insights from the behavioral sciences to provide low-cost, timely, and salient information for consumers (Loewenstein, Sunstein, and Golman 2014; Sunstein 2011, 2014; White

Kelly Ochs Rosinger is an assistant professor in the Department of Education Policy Studies and a research associate in the Center for the Study of Higher Education at the Pennsylvania State University. Her research examines the impact of policy efforts to improve college affordability and transparency and has appeared in Educational Evaluation and Policy Analysis, the Journal of Higher Education, and Review of Higher Education.

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Correspondence: kor9w@virginia.edu

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House Social and Behavioral Sciences Team 2015). For instance, the U.S. Department of Agriculture replaced its food pyramid with a food plate—a familiar image to guide dietary choices for people wanting to make healthy eating choices.¹ Similarly, the Environmental Protection Agency and Department of Transportation developed a vehicle fuel economy label designed to help consumers better estimate fuel costs and savings (Sunstein 2011).

This work extends to postsecondary education and, in particular, to the college-going process during which students and their families face complex decisions about whether and where to go to college and how to finance college. In recent years, the Obama administration, Congress, and the U.S. Department of Education have taken steps to simplify the college-going process and provide salient, easy-to-understand information intended to help students evaluate college decisions (e.g., Advisory Committee for Student Financial Assistance 2005; Dynarski and Wiederspan 2012; The White House 2016). These efforts have resulted in the development of a number of consumer information tools and resources, such as the net price calculator through which students can get an estimate of how much they might pay to attend a particular college and, more recently, the College Scorecard (2016), a website that allows students to search for and compare colleges on a number of institutional metrics (see online appendix).²

One such resource is the “shopping sheet,” a model financial aid award notification created by the U.S. Department of Education and the Consumer Financial Protection Bureau to help students make informed college decisions by simplifying information that colleges send to students about costs, aid, and loan options. In addition to simplifying information, the shopping sheet includes information about a college’s graduation and loan default rates, allowing students to assess college quality and typical outcomes for students who attend that college. Around 550 postsecondary institutions, including more than 50 community colleges, agreed to provide the shopping sheet when it was first released in 2012 for all students who received a financial aid award (U.S. Department of Education 2012; author’s calculations using data from The College Solution 2013). Four years later, more than 3,000 institutions sent the shopping sheet to at least a portion of students with financial aid award letters (U.S. Department of Education 2016).³

The receipt of a financial aid award represents a critical point in the college-going process during which students learn about and evaluate costs and loan options and indicate what aid—and what loans—they will accept at a particular college. Yet students and their families often encounter difficulty understanding and comparing award letters (Kantrowitz 2010; The Institute for College Access & Success [TICAS] 2013; Whitsett and O’Sullivan 2012). The information in award letters can be complex, unclear, and incomplete: many letters from colleges lack information about net costs and may not clearly distinguish grant aid from loans. While the majority of first-year college students—nearly 70 percent (U.S. Department of Education 2016)—list just one college on their application for federal student aid, students who submit the FAFSA (Free Application for Federal Student Aid) to more than one college may find it difficult to compare awards from multiple colleges, each of which includes different information or language to describe aid.

While information about financial aid is often not transparent or easy for students to interpret, information about college outcomes may be even harder for students to determine. *U.S. News & World Report*, *Peterson's*, and other organizations rank colleges on various dimensions of quality and status, such as enrolled students' SAT scores and other measures of institutional selectivity and financial resources (Morse, Brooks, and Mason 2015). A numerical ranking of colleges, however, may obscure or say little about specific student outcomes, such as the likelihood of graduating or of being able to pay back student debt.

Complex and unclear information about costs, loan options, and college outcomes may prevent students from making informed decisions about where to go to college and how to pay for it. Public concern over low graduation rates and rising student debt indicates that this may be the case for a number of students. Among students who started college in 2009, nearly half did not complete a degree within six years. Students who started at community colleges are at particular risk of not completing a degree: fewer than 40 percent of students who enrolled in a public community college in 2009 had earned a degree six years later (National Student Clearinghouse 2015). Over the past decade, the amount of outstanding student debt has more than doubled and the share of students defaulting on loans has risen to 13 percent (College Board 2015). At community colleges, despite the sector's relatively low cost and the small share of students who borrow, nearly one in four borrowers default on loans after entering repayment (Campbell and Hillman 2015; College Board 2015; Dynarski 2015; Lochner and Monge-Naranjo 2015).

The shopping sheet may reduce complexity associated with enrollment and borrowing decisions by simplifying information that students have about college costs, loans, and college outcomes when evaluating college options. In this study, I investigate the impact of the shopping sheet on students' enrollment and borrowing decisions at community colleges. Community colleges enroll disproportionately large shares of students from low-income and minority backgrounds (Ma and Baum 2016), student populations that face particularly high information barriers in the college-going process (Avery and Kane 2004; Grodsky and Jones 2007; Horn, Chen, and Chapman 2003; De La Rosa 2007). Given concerns about the information barriers that students at community colleges may face during the college-going process as well as the relatively low graduation and high default rates among community college students, this article focuses on a population of students for whom low-cost, informational interventions designed to help students make informed college enrollment and borrowing decisions may be particularly important.

Conceptual Framework

Many scholars have examined students' educational investment decisions from a cost-benefit perspective (e.g., DesJardins, Ahlburg, and McCall 2006; Manski and Wise 1983; Perna 2000; Toutkoushian, Shafiq, and Trivette 2013). That is,

students' enrollment and borrowing decisions are assumed to be based on the expected costs and benefits associated with attending a given college, discounted to their present value (Becker 1962; Schultz 1961). These expected costs include direct costs (tuition, fees, room and board, and other charges, adjusted for any grant aid that a student receives) and indirect costs (opportunity costs such as forgone earnings from time spent in school rather than at work).

A number of factors influence the expected benefits associated with a college degree, including the probability of earning a degree (Toutkoushian, Shafiq, and Trivette 2013), which is an increasingly important consideration given the large share of students who start college but do not earn a degree. The quality of the institution that a student attends also impacts expected benefits: earning a degree from a more selective institution (institutions where students are typically more likely to graduate) is associated with higher earnings (Brewer, Eide, and Ehrenberg 1999; Thomas and Zhang 2005; Zhang 2005), particularly for low-income students (Dale and Krueger 2002) and students of color (Dale and Krueger 2014).

In a neoclassical microeconomic model, students make college decisions after weighing the costs and benefits of each alternative. The weights assigned to various costs and benefits represent the utility that a student derives from each alternative. Because utility reflects an individual's tastes and preferences, decisions arrived at via a cost-benefit analysis may not always appear rational from a strictly economic perspective (DesJardins and Toutkoushian 2005). For instance, a student may derive a great deal of utility from attending a campus close to home and therefore assign more weight to a college's location than to factors such as college outcomes that might lead to greater future benefits. Thus, students might arrive at seemingly irrational or suboptimal decisions through a rational process.

However, evidence from the behavioral sciences demonstrates that people's decisions often deviate from those predicted by this traditional economic model in *predictable* ways, particularly when a decision involves processing complex information or when there is a delay between costs and benefits (e.g., Kahneman and Tversky 1979; Tversky and Kahneman 1986), such as deciding where and how much to invest in postsecondary education (see Lavecchia, Liu, and Oreopoulos [2014] for a more detailed discussion of the behavioral economics of education). To reduce complexity and make sense of new information, people often rely on mental shortcuts, or heuristics, that make it easier to evaluate choices but that may lead them to ignore relevant information that is not readily available (Kahneman 2011) or focus too heavily on the present while discounting future benefits (Lavecchia, Liu, and Oreopoulos 2015). In such cases, behavior differs, often systematically, from what a cost-benefit analysis would predict. From the traditional economic perspective then, decisions that involve unclear, complex, or incomplete information or delayed benefits may result in suboptimal outcomes.

The shopping sheet and related efforts are intended to help students optimize their college decisions by drawing on insights from the behavioral sciences to help students better process and use financial aid-related information (e.g.,

Loewenstein, Sunstein, and Golman 2014; Sunstein 2011, 2014; The White House 2016). Recent experimental and quasi-experimental evidence indicates that leveraging behavioral insights to reduce complexity and simplify information as students evaluate borrowing options can impact behavior. For example, interventions demonstrate that changing default borrowing options (Marx and Turner 2016) and providing information and counseling via text message (Barr, Bird, and Castleman 2016) have led to decreases in borrowing. Likewise, coupling previous borrowing data with information about completion and academic supports can decrease borrowing and increase persistence (Stoddard, Urban, and Schmeiser 2016). At the same time, however, a similar intervention focused on informing students about their previous borrowing decisions had little effect on subsequent borrowing and academic outcomes (Darolia 2016). While it is unclear whether these interventions have long-term downstream effects on enrollment or completion behaviors, this literature demonstrates that informational interventions (or “nudges”) can induce people to change behaviors, at least in some instances.

By simplifying how colleges communicate college costs, loan options, and college outcomes to students, the shopping sheet may improve the availability and salience of information that students use to evaluate college costs and benefits and help students make more optimal enrollment and borrowing decisions. Knowing how people arrive at optimal decisions involves understanding how people assign utility to various costs and benefits, but it is expected that people generally arrive at decisions that optimize the net present value when they have complete information. That is, they will largely act to enroll at a college at which they are likely to succeed and borrow an amount that they are likely to be able to pay back. The shopping sheet offers some insight for students into the likely benefits of attending a particular college by providing reference points by which students can evaluate a college’s typical outcomes, specifically a college’s graduation and loan default rates. This information may signal to students the likelihood of graduating and to successfully repaying loans if they borrow. With this information, students may be less likely to enroll at community colleges with poorer graduation outcomes and may borrow less if they attend a college with lower graduation or higher default rates. An evaluation of the shopping sheet at four-year colleges demonstrates that providing information about college outcomes with award letters shifted enrollment and borrowing patterns in these ways (Rosinger 2016), but we know little about how this effort impacts enrollment and borrowing decisions at community colleges or whether these effects differ among higher and lower performing community colleges.

Data and Estimation Strategy

Data for this analysis come from two publicly available data sources: the National Center for Education Statistics’ Integrated Postsecondary Education Data System [IPEDS] and the U.S. Department of Education’s College Scorecard.⁴ The sample consists of 625 public two-year colleges that primarily award

associate's degrees and participate in the federal student loan program. I excluded colleges that do not participate in the federal student loan program from the analysis because students at these colleges do not have the option to borrow federal student loans; about 9 percent of community college students attend a college that does not participate in the federal student loan program (TICAS 2016). I identified colleges that do not participate in the federal student loan programs as those at which no students borrowed federal loans and the average amount borrowed was zero. For simplicity, the sample colleges are hereafter referred to as "community colleges."

I observe sample colleges annually from 2008 to 2014, a period that includes six preintervention years and one postintervention year.⁵ Outcome variables are the (1) number of students enrolled (12-month unduplicated undergraduate enrollment), (2) percentage of students who borrowed federal student loans, and (3) average amount of federal student loans among borrowers. Only 2 percent of community college students borrow nonfederal loans (TICAS 2016); as a result, I focus this analysis on federal borrowing in the community college sector.

The primary independent variable of interest is a dichotomous measure indicating whether a college adopted the shopping sheet in its first year. The U.S. Department of Education maintains a list of colleges on its website that adopt the shopping sheet.⁶ The list is updated periodically to reflect the most recent group of colleges that use the shopping sheet in awarding aid. A list of colleges that adopted the shopping sheet during the first year was not available on this website. Data on the first group of adopters come from The College Solution (2013), a blog with college tips and advice for students, which has an archived list of colleges that agreed to use the shopping sheet as of March 2013.⁷

In March 2013, 700 postsecondary institutions (two-year and four-year) used the shopping sheet. After excluding institutions outside the United States, those no longer open, and colleges that did not provide the shopping sheet to all students, a group of 551 colleges initially adopted the shopping sheet. Adoption was more common within the four-year sector, which I examine in a separate paper (Rosinger 2016) and the for-profit college sector. However, nearly 10 percent of public community colleges ($N = 53$) adopted the shopping sheet in its first year.

To understand whether information in the shopping sheet influenced students' enrollment and borrowing decisions, I interacted the treatment variable (whether an institution has the shopping sheet) with information in the shopping sheet about a college's graduation and loan default rate. This approach allows me to examine whether the shopping sheet's impact differed at colleges that performed better (or worse) relative to others. Graduation rate is measured as low, medium, or high using the U.S. Department of Education's defined cutoff points from the shopping sheet. I aggregated the medium and high classifications because only two community colleges with the shopping sheet fell into the high category (low: 0–17.7 percent; medium/high: above 17.7 percent). I treat loan default rate as a continuous variable because the shopping sheet provides a reference point (the national average of 13.4 percent) by which students can compare a college but does not place a college in a specific high or low category.

The IPEDS and College Scorecard data provide a rich set of college-level control variables that could influence enrollment and borrowing outcomes at sample colleges. Covariates include measures of college costs, such as tuition and fees, grant aid per student, the share of students who receive any financial aid, and median debt, as well as student characteristics that could be related to how students perceive costs, such as percent Pell grant recipient enrollment. I also control for graduation rate, or the likelihood of a student earning a degree, and loan default rate, both of which influence the expected benefits associated with attending a given college. Finally, I control for state appropriations per student to account for differences in state investments in higher education that could influence how many students colleges seek to enroll or how students' educational expenses are financed.

Estimation strategy

I estimate the impact of this information intervention using a quasi-experimental difference-in-differences (DD) estimation strategy. In DD analysis, the counterfactual—or what enrollment and borrowing would have looked like at shopping sheet colleges in the absence of the informational intervention—is constructed by evaluating changes in outcomes before and after the introduction of the shopping sheet at adopting colleges relative to changes in outcomes over the same period at community colleges that did not adopt the shopping sheet. The DD model can be formally expressed as:

$$Y_{it} = \beta_0 + \beta_1 \text{shoppingsheet}_{it} + \beta_2 X_{it} + \gamma_i + \delta_t + \varepsilon_{it}, \quad (1)$$

where Y_{it} is the outcome variable, $\text{shoppingsheet}_{it}$ is a dummy variable equal to 1 if a college adopted the shopping sheet and year is a post-policy year (2014), X_{it} is a vector of college-level covariates, γ_i are college fixed effects, δ_t are year fixed effects, and ε_{it} is the stochastic error term.

To explore the possibility that students respond differently at higher- versus lower-performing institutions, I estimate the same model as equation 1 with the inclusion of interaction terms relating to a college's performance as listed in the shopping sheet. The model can be expressed as:

$$Y_{it} = \beta_0 + \beta_1 \text{sheet}_{it} + \beta_2 \text{sheet}^* \text{medhighgrad}_{it} + \beta_4 \text{sheet}^* \text{defaultrate}_{it} + \beta_5 X_{it} + \gamma_i + \delta_t + \varepsilon_{it}, \quad (2)$$

where $\text{sheet}^* \text{medhighgrad}_{it}$ indicates that a shopping sheet college's graduation rate was in the medium/high category in 2014, and $\text{shoppingsheet}^* \text{defaultrate}_{it}$ is the interaction of whether a college adopted the shopping sheet with a college's default rate. In both equations 1 and 2, year fixed effects account for common shocks that impacted outcomes similarly at all colleges, while college fixed effects account for institutional heterogeneity at each college within the sample. Standard errors are robust and clustered at the college level to account for heteroskedasticity and serial correlation (Bertrand, Duflo, and Mullainathan 2004).

Colleges voluntarily adopted the shopping sheet, leading to concerns that adopting colleges might be systematically different in observable or unobservable ways than nonadopting colleges. Inference in a DD design does not require treatment and comparison groups to be equivalent in observable ways, but it does require that treatment and comparison college experience common trends in outcomes prior to the adoption of treatment. In other words, the design assumes that enrollment and borrowing trends were similar between 2009 and 2013 for colleges that would eventually adopt the shopping sheet and those that would not. If this is not the case, any changes in outcomes observed after the introduction of the shopping sheet may be due to differences in borrowing at adopting and nonadopting colleges that existed prior to the actual informational intervention. For instance, colleges that recently experienced larger increases in student borrowing may have been more likely to adopt the shopping sheet in an effort to reduce borrowing.

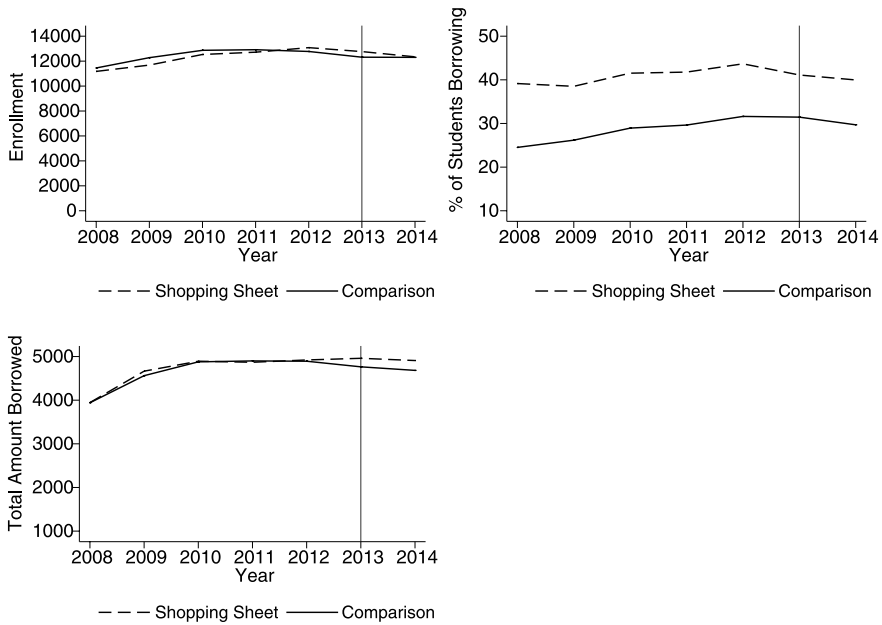
To account for potential differences in outcome trends at adopting and nonadopting colleges, I employ several strategies. First, I limited the sample to public two-year colleges that primarily award associate's degrees to create a within-sector comparison group. Colleges within the public community college sector are more likely to experience similar enrollment and borrowing trends over time relative to four-year or for-profit colleges where borrowing rates are different (College Board 2015). I also control for college-level covariates that may influence outcomes or the decision to use the shopping sheet and a college-specific linear trend, which allows each college to have its own enrollment and borrowing trend prior to adoption of the shopping sheet. I create the college-specific trend by regressing each outcome on linear time and interacting the resulting coefficient with the year dummy variables. This accounts for different enrollment and borrowing trends at each of the sample colleges in pre-policy years. Finally, I conducted a series of placebo tests, assigning treatment in each of the years prior to actual treatment and estimating models using pretreatment years (2008–2013) to test for significant differences in outcomes between groups prior to the informational intervention. I indicate in the tables when placebo effects were positive in pretreatment years. For the average amount borrowed, I detect a positive and statistically significant effect of the shopping sheet in 2013, the year prior to actual adoption. As a result, estimates for the average amount borrowed should be interpreted with some caution, given that effects could include or mask other changes in outcomes that might have occurred just prior to the shopping sheet's introduction (e.g., an increase in the share of students borrowing in 2013 may have motivated colleges to adopt the shopping sheet the following year).

Findings

Descriptive statistics

Figure 1 shows trends in each of the outcomes at shopping sheet and comparison colleges from 2008 to 2014; the reference line in 2013 denotes the pretreatment years (to the left) and posttreatment year (to the right). Enrollment at

FIGURE 1
Outcomes at Shopping Sheet and Comparison Colleges, 2008–2014



treatment and comparison colleges followed similar trends throughout the pre-treatment period, increasing slightly in the early years and leveling off around 2010 or 2011—a trend that has been noted previously in public community colleges (Ma and Baum 2016). The share of students borrowing was higher at shopping sheet than comparison colleges throughout the seven-year period, but followed a similar trend. There is no visually discernable change in enrollment or borrowing rates between shopping sheet and comparison colleges after the introduction of the shopping sheet. The average amount borrowed was similar (\$4,500) at shopping sheet and comparison colleges throughout the pretreatment period, diverging some in 2013 with slightly higher levels of borrowing at shopping sheet colleges.

Table 1 provides descriptive statistics for covariates at treatment and comparison colleges in the year before (2013) and the first year (2014) after the shopping sheet. Tuition and fees were slightly higher in 2013 at colleges that adopted the shopping sheet (\$4,400) relative to comparison colleges (\$3,700). Shopping sheet colleges offered around \$200 more in grant aid than nonadopting colleges, and median borrowing was around \$300 less at shopping sheet colleges in 2013. Colleges that did not adopt the shopping sheet received around \$500 more per student in state funding, perhaps contributing to the relatively low tuition levels at nonadopting colleges. Shopping sheet and comparison colleges were similar in terms of the share of students who received any type of financial aid, the share of

TABLE 1
Summary Statistics for Shopping Sheet and Comparison Colleges, 2013 and 2014

| | Shopping Sheet Colleges | | Comparison Colleges | |
|----------------------------------|-------------------------|------------------------|------------------------|------------------------|
| | 2013 | 2014 | 2013 | 2014 |
| Tuition and fees | \$4,367 (\$1,443.1) | \$4,394 (\$1,301.5) | \$3,746 (\$1,846.8) | \$3,831 (\$1,942.0) |
| Grant aid per student | \$4,940 (\$686.0) | \$5,047 (\$764.0) | \$4,671 (\$789.3) | \$4,710 (\$784.7) |
| Percent receiving any aid | 79.3% (11.5%) | 81.8% (11.2%) | 78.4% (13.8%) | 78.5% (13.6%) |
| Percent Pell enrollment | 56.6% (9.7%) | 56.3% (9.6%) | 55.4% (13.0%) | 55.0% (13.0%) |
| Median borrowing | \$6,498 (\$1,779.3) | \$6,594 (\$1,804.0) | \$6,838 (\$2,257.6) | \$6,821 (\$2,284.4) |
| Default rate | 18.4% (5.9%) | 18.5% (4.9%) | 18.7% (6.9%) | 17.1% (6.5%) |
| Graduation rate | 20.5% (6.2%) | 21.2% (6.1%) | 20.4% (10.3%) | 20.9% (10.0%) |
| State appropriations per student | \$2,890 (\$829.7) | \$3,058 (\$879.6) | \$3,404 (\$2,006.6) | \$3,711 (\$2,262.8) |
| N (colleges) | 53 | | 572 | |

NOTE: Standard deviations reported in parentheses. Financial figures are adjusted for inflation using the Consumer Price Index. 2013 and 2014 represent years immediately before and after introduction of the shopping sheet, respectively.

students who received the federal Pell grant, and college outcomes (graduation rate and loan default rate).

Table 2 provides DD estimates of the shopping sheet’s impact on enrollment and borrowing. The three columns for each outcome present findings from (1) a simplified model that includes only the shopping sheet indicator and college and year fixed effects, (2) the simplified model with the addition of college-level covariates, and (3) the simplified model with the addition of college-level covariates and a college-specific trend. Findings indicate the shopping sheet did not have a statistically significant impact on the number of students enrolled or the average amount that borrowers took out in federal loans. Findings provide some evidence of a small decrease (around 2 percentage points) in the share of students borrowing, but this effect was not statistically significant once the college-specific trend was included.

I next estimated models that interacted whether a college adopted the shopping sheet with whether a college’s graduation rate was listed as low (relative to medium or high) and a college’s loan default rate. Results are presented in Table 3. The three columns for each outcome present results from the same models

TABLE 2
Difference-in-Differences Estimates of the Overall Impact of the Shopping Sheet

| | Number of Students Enrolled | | | Share of Students Borrowing | | | Average Amount Borrowed | | |
|----------------------------------|-----------------------------|----------------------------|--------------------------|-----------------------------|--------------------|--------------------|-------------------------|----------------------|-------------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Shopping sheet | -140.07 (322.18) | -151.24 (355.79) | -157.79 (165.37) | -2.55** (1.02) | -2.33*** (0.89) | -1.05 (0.76) | 141.18 (91.05) | 110.81 (81.84) | 88.99 (84.08) |
| Tuition and fees | | -435.44* (252.79) | -184.03* (109.31) | | 0.20 (0.54) | -0.33 (0.28) | | 115.76** (51.22) | 107.56** (49.25) |
| Grant aid | | -170.11 (108.88) | 12.19 (40.51) | | -0.18 (0.31) | -0.01 (0.20) | | 259.18*** (35.00) | 180.45*** (29.33) |
| Percent any aid | | -15.81 (10.89) | 2.32 (3.21) | | 0.14*** (0.04) | 0.13*** (0.02) | | 7.06** (3.32) | 6.42*** (2.36) |
| Percent Pell | | 50.84 (34.87) | 0.93 (3.89) | | 0.31*** (0.04) | 0.15*** (0.03) | | 1.50 (3.74) | 0.34 (2.90) |
| Median borrowing | | -375.56 (401.37) | 4.31 (30.16) | | 0.88*** (0.27) | 0.18 (0.17) | | 259.17*** (36.24) | 138.16*** (24.38) |
| Default rate | | -12.34 (17.92) | -4.20 (3.10) | | 0.04 (0.04) | -0.04 (0.03) | | -0.36 (4.75) | -4.64 (3.66) |
| Graduation rate | | 23.62 (17.46) | 4.72 (3.76) | | -0.04 (0.03) | -0.01 (0.03) | | -6.98** (3.19) | -5.90* (3.44) |
| State appropriations per student | | 214.41 (310.76) | -92.19* (48.97) | | -0.19 (0.21) | 0.00 (0.13) | | -9.02 (18.78) | -11.92 (13.58) |
| Percent borrowing | | | | | | | | 0.22 (3.32) | -4.29* (2.51) |
| Constant | 11,350.57*** (155.50) | 13,385.43*** (1,434.03) | 13,166.00*** (443.04) | 23.68*** (0.35) | -1.22 (3.54) | 15.86*** (2.37) | 3,786.26*** (34.20) | 610.61* (347.70) | 2,280.49*** (275.92) |
| Observations | 4,024 | 3,984 | 3,984 | 4,024 | 3,984 | 3,984 | 4,024 | 3,984 | 3,982 |
| R ² | .02 | .03 | .89 | .13 | .23 | .51 | .19 | .27 | .42 |
| Placebo effects | No | No | No | Yes | No | No | Yes | Yes | Yes |

NOTE: Robust standard errors clustered at the college level in parentheses. Financial figures are adjusted for inflation using the Consumer Price Index. Tuition, grant aid, median borrowing, and state appropriations per student are scaled by 1,000 to ease interpretation. All models include college and year fixed effects. Some placebo tests yielded marginally significant findings in 2013.
* $p < .10$. ** $p < .05$. *** $p < .01$.

TABLE 3
Difference-in-Differences Estimates of the Impact of College Outcome
Information in the Shopping Sheet

| | Number of Students Enrolled | | | Share of Students Borrowing | | | Average Amount Borrowed | | |
|--------------------------------|-----------------------------|----------|----------|-----------------------------|--------|--------|-------------------------|----------|----------|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Shopping sheet | 555.19 | 343.61 | 427.59 | 1.79 | -2.03 | -1.96 | 488.77** | 332.03 | 348.03 |
| | (577.92) | (786.21) | (558.34) | (4.88) | (3.87) | (3.88) | (227.19) | (244.82) | (244.72) |
| Shopping sheet × low grad rate | -103.48 | -160.06 | -445.83 | -1.48 | -1.58 | -1.57 | 110.45 | 105.63 | 110.32 |
| | (727.25) | (716.41) | (396.94) | (1.92) | (1.50) | (1.51) | (173.82) | (148.65) | (149.58) |
| Shopping sheet × default rate | -36.48 | -23.95 | -23.95 | -0.21 | 0.01 | 0.01 | -20.33° | -13.74 | -14.65 |
| | (31.36) | (38.00) | (28.67) | (0.23) | (0.18) | (0.18) | (12.33) | (11.85) | (11.88) |
| Observations | 4,010 | 3,984 | 3,984 | 4,010 | 3,984 | 3,984 | 4,010 | 3,984 | 3,984 |
| R ² | .02 | .03 | .89 | .13 | .23 | .23 | .19 | .27 | .28 |

NOTE: Robust standard errors clustered at the college level in parentheses. Financial figures are adjusted for inflation using the Consumer Price Index. All models include college and year fixed effects and covariates (tuition and fees, grant aid, percent receiving any aid, percent Pell enrollment, median borrowing, default rate, graduation rate, and state appropriations per student).
°*p* < .10. ***p* < .05. ****p* < .01.

outlined above: the simplified model, the simplified model with covariates, and the simplified model with covariates and college-specific trends. The coefficients from the interaction terms can be interpreted as the impact of the shopping sheet at colleges with worse outcomes, that is, low graduation rate or higher loan default rate, relative to other colleges. Findings indicate that information about college outcomes did not have a statistically significant impact on the number of students enrolled or the share of students borrowing. There is some evidence that the shopping sheet was associated with an overall increase in the amount borrowed. This increase is attenuated at colleges with higher loan default rates, though this relationship was not statistically significant across colleges once additional covariates were included.

Limitations

In considering the findings presented above that indicate a relatively limited impact of the shopping sheet, it is necessary to note that the statistical power to detect effects and, as a result, the conclusions that can be drawn from this analysis, are limited by the small number of community colleges adopting the

shopping sheet and the recent release of the shopping sheet.⁸ Additionally, any estimate related to borrowing could be influenced by changes in enrollment patterns that occurred after adoption. Findings did not indicate a statistically significant impact on enrollment, but the limited statistical power to detect an effect precludes being able to entirely rule out potential shifts in enrollment or in the composition of students enrolled that could subsequently influence borrowing at shopping sheet colleges. Similarly, regardless of whether the overall share of students borrowing shifts, the amount that is borrowed may also change if the composition of students is more or less needy.

To account for potential shifts in the amount borrowed if there are changes in the composition of students enrolled or students who borrow, I control for the share of students borrowing in models estimating the impact on the average amount borrowed. Other covariates may account for other factors that could shape borrowing rates and amounts. Controlling for the share of Pell recipients, for example, provides an estimate of the shopping sheet's impact independent of the share of students receiving the federal government's largest source of grant aid for low-income students. Unobserved changes in the composition of students enrolled, however, could potentially confound the estimated impact on borrowing. Despite the limited statistical power and the difficulty in isolating enrollment and borrowing effects, this study provides an early evaluation of a recent policy effort to simplify information that students receive from community colleges about costs, loan options, and outcomes.

Discussion

This study evaluated a recent federal policy effort intended to help students make informed college decisions by simplifying information about college costs, loan options, and college outcomes. Results generally demonstrate little enrollment and borrowing response to this informational intervention at community colleges. Although there is some indication that the shopping sheet may have decreased the average amount students borrowed at colleges with high loan default rates, the evidence is far from conclusive. There are several possible explanations for why the shopping sheet had little impact on students' enrollment and borrowing decisions at community colleges. First, this study assumes that information in the shopping sheet was simple and easy for students and their families to understand. A report commissioned by the National Association of Student Financial Aid Administrators (2013), however, indicates that students and their families still were unsure of net cost and other details of a financial aid award after reviewing the shopping sheet and other award formats. Although the shopping sheet went through various stages of development, the format may not do enough to simplify information that students receive from colleges about college costs, loan options, and college outcomes. A shopping sheet by itself also may not be enough to alter students' decisions, particularly at community colleges, where students may face higher information barriers. Previous research

indicates that how students access, use, interpret, and respond to information about college costs and opportunities for financial aid is shaped by a number of cultural, social, and environmental characteristics (De La Rosa 2007; Perna and Steele 2011; Tierney and Venegas 2009).

It is also possible that financial aid award letters come too late in the college-going process to influence students' enrollment and borrowing decisions. By the time students receive financial aid award letters in the spring and summer prior to enrollment, they may have already decided where to go to college or find their college options limited because priority state aid or other deadlines have passed. Likewise, students and their families have little time once they receive an award to change savings and/or work behavior in ways that could influence whether and how much a student has to borrow to attend a given college.

At the same time, even if students have timely information to inform their choices, they might still enroll in the nearby community college because it is the only option available in their geographic area (Hillman 2016). That is, even if a college has poor outcomes relative to other colleges, it may be the only opportunity a student has to pursue postsecondary education if there are no other institutions nearby. This study provides evidence that financial aid policy should consider influences beyond information alone such as the context in which students evaluate college options, the timing of when information is provided, and the geographic constraints that students face in selecting colleges.

This study contributes to our understanding of how informational interventions can shape outcomes for students, particularly at community colleges that serve as an affordable access point for investing in human capital. Economic theory predicts that students will make decisions that maximize net benefits, for instance by enrolling in colleges where they are more likely to succeed and to pay back any loans they take out. The findings in this study provide some indication that borrowing decreased at colleges with high default rates. In a related study examining the impact of the shopping sheet at four-year colleges, I found that students were less likely to enroll at colleges with relatively worse outcomes, and students who did enroll at colleges with worse outcomes borrowed less (Rosinger 2016). But only time will tell whether students are better off as a result or what the longer-term impact of this informational intervention might be for students' outcomes at both four-year and community colleges. In 2019, the first group of students that received the shopping sheet will reach their six-year mark, a common timeframe in which graduation outcomes are measured (e.g., National Student Clearinghouse 2015). Future research should examine whether students who received this informational intervention throughout college experience an increased likelihood of graduating and paying back student loans.

The shopping sheet represents a low-cost policy effort aimed at improving college outcomes by helping students to make optimal decisions regarding enrollment and borrowing. With little indication of large reform in funding levels for student financial aid on the horizon, small changes that help students to navigate the college-going process and make informed college decisions represent perhaps the most cost effective way to improve college outcomes (Dynarski,

Hyman, and Schanzenbach 2011). Although the current study demonstrates that the shopping sheet had a limited effect at community colleges, better information surrounding award letters may ensure “truth in advertising” by increasing transparency of college costs, loan options, and college outcomes.

This may be particularly important at community colleges, which serve as an important access point to higher education for first-generation, low-income, and underrepresented minority students (Ma and Baum 2016), many of whom face greater informational barriers about college and financial aid than their peers (Avery and Kane 2004; Grodsky and Jones 2007; Horn, Chen, and Chapman 2003; De La Rosa 2007). Although a relatively small share of borrows, students attending community colleges face a particularly high risk of defaulting on loans (Lochner and Monge-Naranjo 2015), especially for students who do not complete a degree (Dynarski 2015). The high default rate among community college students reflects institutional factors (e.g., rising college costs, relatively low graduation rates) and student characteristics (e.g., difficulty navigating the repayment process, low earnings after graduating) (Campbell and Hillman 2015). While these and other factors merit attention, providing easy-to-understand information to students when they make college enrollment and borrowing decisions may also help these students to navigate complex college decisions.

More broadly, the shopping sheet and other related efforts to help students evaluate college options may focus public attention on college outcomes such as graduation and default rates and encourage colleges to improve these outcomes. Federal policy-makers are developing a number of tools in addition to the shopping sheet to assist students in evaluating college options. In fall 2015, for instance, the Obama administration announced the release of a revamped College Scorecard website that allows students to compare colleges on a number of metrics, some of which are the same as the shopping sheet (e.g., graduation rate) and others of which are new to the Scorecard (e.g., median earnings). The shopping sheet, Scorecard, and other related efforts raise important questions about whether transparent, clear, and comparative information could serve as a mechanism that forces colleges to focus on improving student outcomes.

Notes

1. See www.choosemyplate.gov.

2. See online version of article for appendix.

3. In 2012, President Obama issued an executive order (Exec. Order No. 13,607 2012) that requires postsecondary institutions complying with the VA Principles of Excellence to use a standardized financial aid award for students who are eligible to receive federal military and veterans educational benefits. For the complete and current list of colleges that have adopted the shopping sheet with information about which colleges use the shopping sheet for students who receive federal military and veterans educational benefits, see <http://www2.ed.gov/policy/highered/guid/aid-offer/index.html>.

4. See <https://collegescorecard.ed.gov/data/>.

5. Consistent with IPEDS labeling, year indicates the year in which the academic year ends (e.g., 2014 represents data for the 2013–2014 academic year). Colleges agreed to adopt the shopping sheet during the 2012–2013 academic year to award aid for the 2013–2014 academic year.

6. See <http://www2.ed.gov/policy/highered/guid/aid-offer/index.html>.
7. See thecollegesolution.com.
8. The enrollment and borrowing outcomes observed one year after policy adoption represent the most current data available through IPEDS as of January 2017.

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